

**FINAL
AIR QUALITY TECHNICAL MEMORANDUM**

**GANDY BOULEVARD (SR 694) PD&E STUDY
FROM WEST OF US 19 TO EAST OF 4th STREET
PINELLAS COUNTY**

**Work Program Item Segment No: 256931 1
Federal Aid Project No: F-295-1(1) (Old)**

**This project evaluated improvement alternatives for Gandy Boulevard (SR 694)
from west of US 19 to east of 4th Street
Pinellas County, Florida.**

Prepared for:

**Florida Department of Transportation
District Seven
11201 North McKinley Drive
Tampa, Florida 33612-6456**

August 2002

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Prepared for:

**Florida Department of Transportation
District Seven
11201 North McKinley Drive
Tampa, Florida 33612-6456**

Prepared by:

**PBS&J
5300 West Cypress Street
Suite 300
Tampa, Florida 33607**

August 2002

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) conducted a Project Development and Environment (PD&E) Study to evaluate improvement alternatives along Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street in the cities of Pinellas Park and St. Petersburg in Pinellas County, Florida. The project location map in Figure 1-1 illustrates the location and limits of the Study.

In accordance with the Clean Air Act Amendments (CAAA) of 1990 and the FDOT PD&E Manual, an analysis was conducted to determine the effect proposed improvements to Gandy Boulevard (SR 694) would have on air quality. Based on FDOT's air quality screening test (COSCREEN98), it was determined that the proposed project will not cause the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO) to be exceeded. Therefore, this project will have a minimal effect on air quality.

The project is in an area that has been designated as a maintenance area for the ozone standards under the criteria provided in the CAAA of 1990. The project is included in the urban area's current approved conforming Transportation Improvement Program (TIP) which was signed by the Secretary of the Florida Department of Transportation on September 28, 2001. This project is included in the area's Conformity Determination report that was approved by the Metropolitan Planning Organization on May 9, 2001, and conditionally approved by the Federal Highway Administration/Federal Transit Authority on September 28, 2001, with final approval given on November 28, 2001. This project's design concept and scope are the same as that which is found in the conforming plan and TIP.

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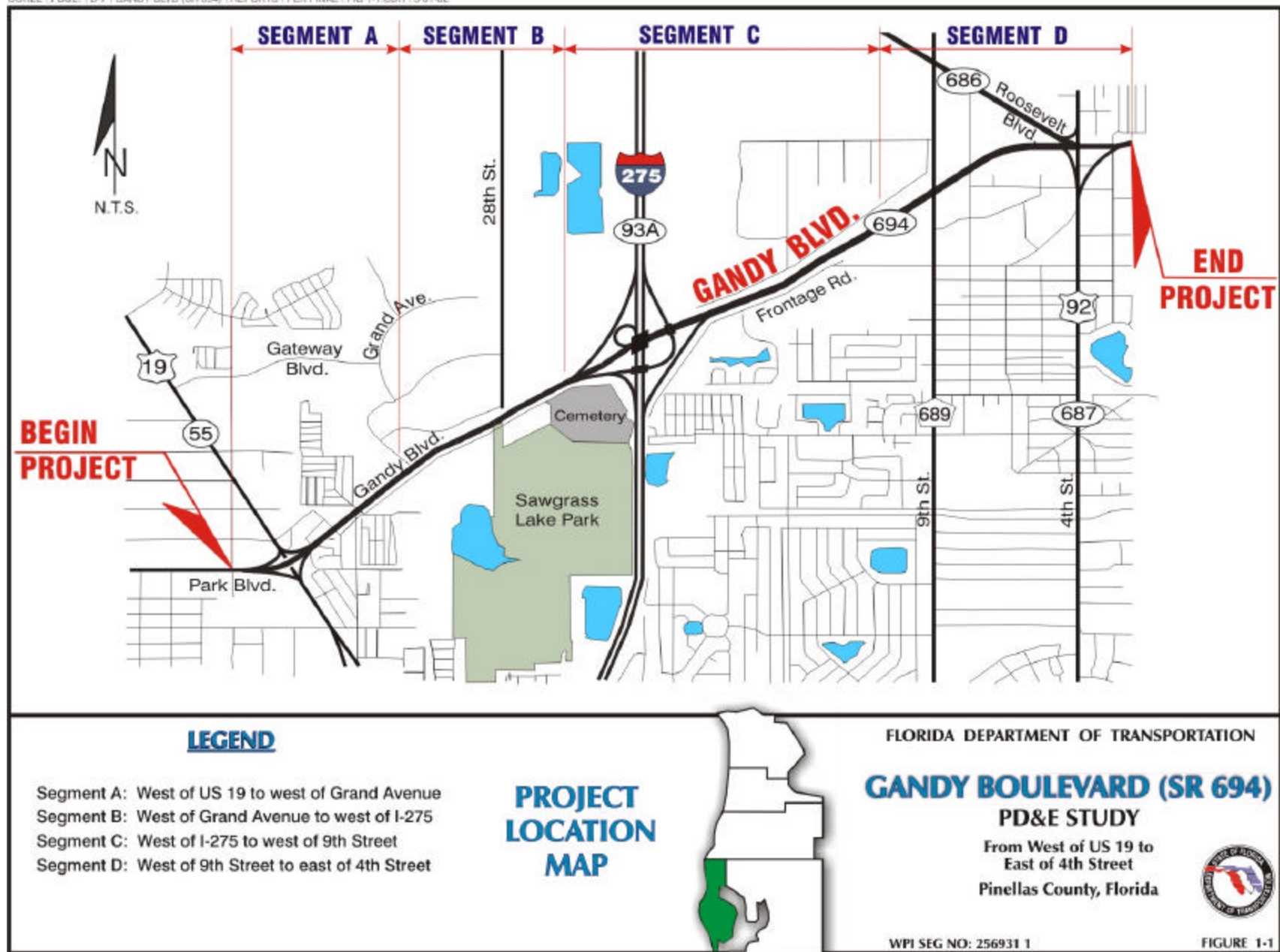
1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) has conducted a Project Development and Environment (PD&E) Study to evaluate improvement alternatives along Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street in the cities of Pinellas Park and St. Petersburg in Pinellas County, Florida. The project location map in Figure 1-1 illustrates the location and limits of the Study.

The objective of this PD&E Study was to provide documented environmental and engineering analyses, which would help the FDOT and the Federal Highway Administration (FHWA) reach a decision on the type, conceptual design, and location of the necessary improvements along the Gandy Boulevard (SR 694) corridor to accommodate future transportation needs in a safe and efficient manner. The purpose of the Air Quality Technical Memorandum was to document the effect the project would have on motor vehicle emissions. Specifically, this Study has predicted and analyzed carbon monoxide (CO) concentrations for the No-Build and Build project alternatives. The analysis has determined whether or not implementation of the proposed improvements causes the National Ambient Air Quality Standards (NAAQS) for CO to be exceeded. Potential effects of construction on air quality were also addressed.

2.0 PROJECT DESCRIPTION

Through the PD&E Study process, the FDOT evaluated improvement alternatives along the Gandy Boulevard (SR 694) corridor. The Gandy Boulevard (SR 694) corridor is primarily an east/west facility, which in its entirety, extends from a western terminus at Gulf Boulevard in Pinellas County to an eastern terminus at Bayshore Boulevard in Hillsborough County. The Gandy Boulevard (SR 694) corridor is functionally classified as an east/west principal urban arterial highway and is part of the Florida Intrastate Highway System (FIHS). The facility also serves as a major hurricane evacuation route for residents in Pinellas County. The PD&E Study limits encompass the portion of Gandy Boulevard (SR 694) from west of the US 19/Gandy Boulevard (SR 694)



interchange to east of 4th Street and include proposed interchanges at: 4th Street and Gandy Boulevard (SR 694); 9th Street and Gandy Boulevard (SR 694); and interchange improvements at I-275. The total length of the Study is approximately 3.9 miles (mi.). This project has been evaluated in the Major Investment Study¹, which was initiated in 1996.

For PD&E studies, projects are divided into segments based on the existing land use, interchange locations, and projected traffic volumes for the design year. Because the portion of Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street contained similar land use characteristics and projected traffic volumes, this project was divided into four segments based on the new interchanges that are proposed in the corridor. The segments of the project are identified as follows:

- Segment A: West of US 19 to west of Grand Avenue
- Segment B: West of Grand Avenue to west of I-275
- Segment C: West of I-275 to west of 9th Street
- Segment D: West of 9th Street to east of 4th Street

A Preliminary Engineering Report (PER) has been prepared as part of this PD&E Study. The proposed Build Alternative is discussed in the PER.

3.0 PROJECT NEED

The need for improvement along the Gandy Boulevard (SR 694) corridor was established based on the evaluation of the following:

- Current quality of traffic operations in the study area;
- The expected future quality of traffic operations along Gandy Boulevard (SR 694) under the No-Build Alternative;
- Traffic safety statistics for the period between 1994 and 1998, and
- The projected future socio-economic growth in the region of the project.

4.0 METHODOLOGY

An air quality evaluation, specifically an analysis of CO concentrations, was performed in accordance with FDOT's PD&E Manual². The computerized screening test, COSCREEN98 (Revised) was used. Using worst-case assumptions for meteorological, traffic and site conditions, COSCREEN98 predicts CO concentrations at established receptor locations. The results can be directly compared to the NAAQS to identify the potential for the CO standard to be exceeded. The NAAQS for CO are 35 parts per million and 9 parts per million for 1-hour and 8-hours, respectively.

Traffic data used in the analysis were provided in the Traffic Report³ prepared separately for this Study. The traffic data reflect opening year (2005) and design year (2025) traffic conditions for the No-Build and Build Alternatives. Aerial photography and the preferred design concept were used to determine receptor/roadway distance relationships. Based on a review of land use, the area was modeled as an urban setting.

Motor vehicle emissions are typically worst at signalized intersections where vehicles incur delay. A review of the traffic data documented in the Traffic Report showed the signalized intersection of US 19 and the frontage roads paralleling Gandy Boulevard (SR 694) as having the highest approach volumes and longest vehicle delay times. Additionally, reasonable receptor sites were located in close proximity to the intersection. Therefore, the intersection of US 19 and the frontage roads paralleling Gandy Boulevard (SR 694) was evaluated as a worst-case scenario.

Traffic data used in the analysis are provided in Table 1 and the traffic data sheets documented in the Traffic Report are provided in the Appendix. The analysis was performed for the opening year (2005) and design year (2025) for No-Build and Build conditions. As documented in the Traffic Report, traffic volumes in a given year were the same for the No-Build and Build conditions. Additionally, free flow approach

speeds, as determined by the 1985 Highway Capacity Manual, were the same for No-Build and Build conditions.

Table 1
Traffic Data

Scenario	Hourly Traffic Volume¹	Free Flow Approach Speed
2005 No-Build	4,154	50 mph
2025 No-Build	5,219	50 mph
2005 Build	4,154	50 mph
2025 Build	5,219	50 mph

¹ Most congested leg approaching the intersection.

CO levels are highest near travel lanes where pollutants are emitted with concentrations decreasing as the distance from the roadway increases. As a worst-case scenario, CO concentrations were predicted at reasonable receptor sites in close proximity to the intersection of US 19 and the frontage roads paralleling Gandy Boulevard (SR 694).

A reasonable receptor site is an area where people can be expected to spend a period of time comparable to the 1-hour and 8-hour averaging times used in establishing the NAAQS for CO. Sites in close proximity to the intersection included residences in the Pine Brooke community and businesses. Receptor locations have been depicted on the aerial photograph found in the Appendix. Receptor sites are described as follows:

- R1 – A single-family residence located 60 feet (ft.) east of US 19 and 140 ft. north of the Gandy Boulevard (SR 694) frontage road;
- R2 – Friends of Strays (animal shelter) located 210 ft. east of US 19 and 65 ft. south of the Gandy Boulevard (SR 694) frontage road;
- R3 – Dunkin Donuts located 70 ft. east of US 19 and 250 ft. south of the Gandy Boulevard (SR 694) frontage road;
- R4 – Suncoast Bicycles located 20 ft. east of US 19 and 350 ft. south of the Gandy Boulevard (SR 694) frontage road;

R5 – La Quinta Inn (Building 1) located 140 ft. west of US 19 and 65 ft. north of the Gandy Boulevard (SR 694) frontage road; and

R6 – La Quinta Inn (Building 2) located 70 ft. west of US 19 and 230 ft. north of the Gandy Boulevard (SR 694) frontage road.

5.0 RESULTS

The predicted CO concentrations for the No-Build and Build conditions are provided in Tables 2 and 3, respectively. Output sheets from the COSCREEN98 model have been provided in the Appendix.

Table 2
Predicted Worst-Case CO Concentrations for the
No-Build Condition

Year	Receptor	CO Concentrations (parts per million)	
		1-Hour	8-Hour
2005	Pine Brooke	10.7	6.4
	Friends of Strays	10.4	6.2
	Dunkin Donuts	10.2	6.1
	Suncoast Bicycles	12.2	7.3
	La Quinta Inn (Bldg. 1)	11.0	6.6
	La Quinta Inn (Bldg. 2)	10.2	6.1
2025	Pine Brooke	10.8	6.5
	Friends of Strays	10.7	6.4
	Dunkin Donuts	10.2	6.1
	Suncoast Bicycles	12.4	7.4
	La Quinta Inn (Bldg. 1)	10.8	6.5
	La Quinta Inn (Bldg. 2)	10.1	6.1

Table 3
Predicted Worst-Case CO Concentrations for the Build Condition

Year	Receptor	CO Concentrations (parts per million)	
		1-Hour	8-Hour
2005	Pine Brooke	10.7	6.4
	Friends of Strays	10.4	6.2
	Dunkin Donuts	10.2	6.1
	Suncoast Bicycles	12.2	7.3
	La Quinta Inn (Bldg. 1)	11.0	6.6
	La Quinta Inn (Bldg. 2)	10.2	6.1
2025	Pine Brooke	10.8	6.5
	Friends of Strays	10.7	6.4
	Dunkin Donuts	10.2	6.1
	Suncoast Bicycles	12.4	7.4
	La Quinta Inn (Bldg. 1)	10.8	6.5
	La Quinta Inn (Bldg. 2)	10.1	6.1

All predicted CO concentrations for the No-Build and Build conditions in the opening and design years were below the 1-hour NAAQS of 35 parts per million and the 8-hour standard of 9 parts per million. The predicted 1-hour and 8-hour concentrations included a background CO level of 5.0 and 3.0 parts per million, respectively.

As previously stated, the Traffic Report documents traffic conditions as being the same for the No-Build and Build conditions. Additionally, the distance to the nearest travel lane for each intersecting street was the same for the No-Build and Build conditions. Consequently, CO concentrations for the No-Build and Build conditions in a given year were predicted to be the same.

6.0 CONFORMANCE WITH THE STATE IMPLEMENTATION PLAN

The project is in an area that has been designated as a maintenance area for the ozone standards under the criteria provided in the Clean Air Act Amendments of 1990. The project is included in the urban area's current approved conforming Transportation

Improvement Program (TIP) which was signed by the Secretary of the Florida Department of Transportation on September 28, 2001. This project is included in the area's Conformity Determination report that was approved by the Metropolitan Planning Organization on May 9, 2001, and conditionally approved by the FHWA/Federal Transit Authority on September 28, 2001, with final approval given on November 28, 2001. This project's design concept and scope are the same as that which is found in the conforming plan and TIP. The FDOT memorandum documenting conformity is found in the Appendix.

7.0 CONSTRUCTION IMPACTS

Construction activities may cause minor short-term air quality effects. These effects will be minimized by adherence to the latest edition of the FDOT Standard Specifications for Road and Bridge Construction⁴.

8.0 REFERENCES

1. Major Investment Study; Parsons Brinckerhoff Quade & Douglas; 2001
2. Florida Department of Transportation Project Development and Environment (PD&E) Manual, Volume 2, Chapter 16; Tallahassee, Florida; August 1999.
3. Design Traffic Memorandum; Gannett Fleming, Inc.; Tampa, Florida; April 2001.
4. Florida Department of Transportation Standard Specifications for Road and Bridge Construction; Tallahassee, Florida; 2000.

APPENDIX

**DISTRICT 7 PD&E
TRAFFIC DATA FOR AIR STUDY SCREENING TEST**

DATE: 13-Mar-01
PREPARED BY: Gannett Fleming - R. Minyard

Project Number(s): 256931 1 32 01
Project Description: SR 694 (GANDY BOULEVARD) FROM US 19 TO EAST OF 4TH STREET

NOTE: The most congested intersection is the intersection with the highest total volume and lowest departure speeds and it could be two different intersections based on the "Build" vs. "No-Build" alternatives. The traffic volumes are to be the vph of the most congested leg approaching the intersection. The speeds are to be the approach speed for the most congested leg no closer than 152.4 m (500') from the intersection.

Gandy Blvd at US 19

OPENING YEAR: 2005

"Build"

Signalized Intersection:
Gandy Blvd at US 19
Design or Peak Hour Traffic
for most congested leg: 4154
Specify leg: WB PM
Approach Speed: 50

"No-Build"

Signalized Intersection:
Gandy Blvd at US 19
Design or Peak Hour Traffic
for most congested leg: 4154
Specify leg: WB PM
Approach Speed: 50

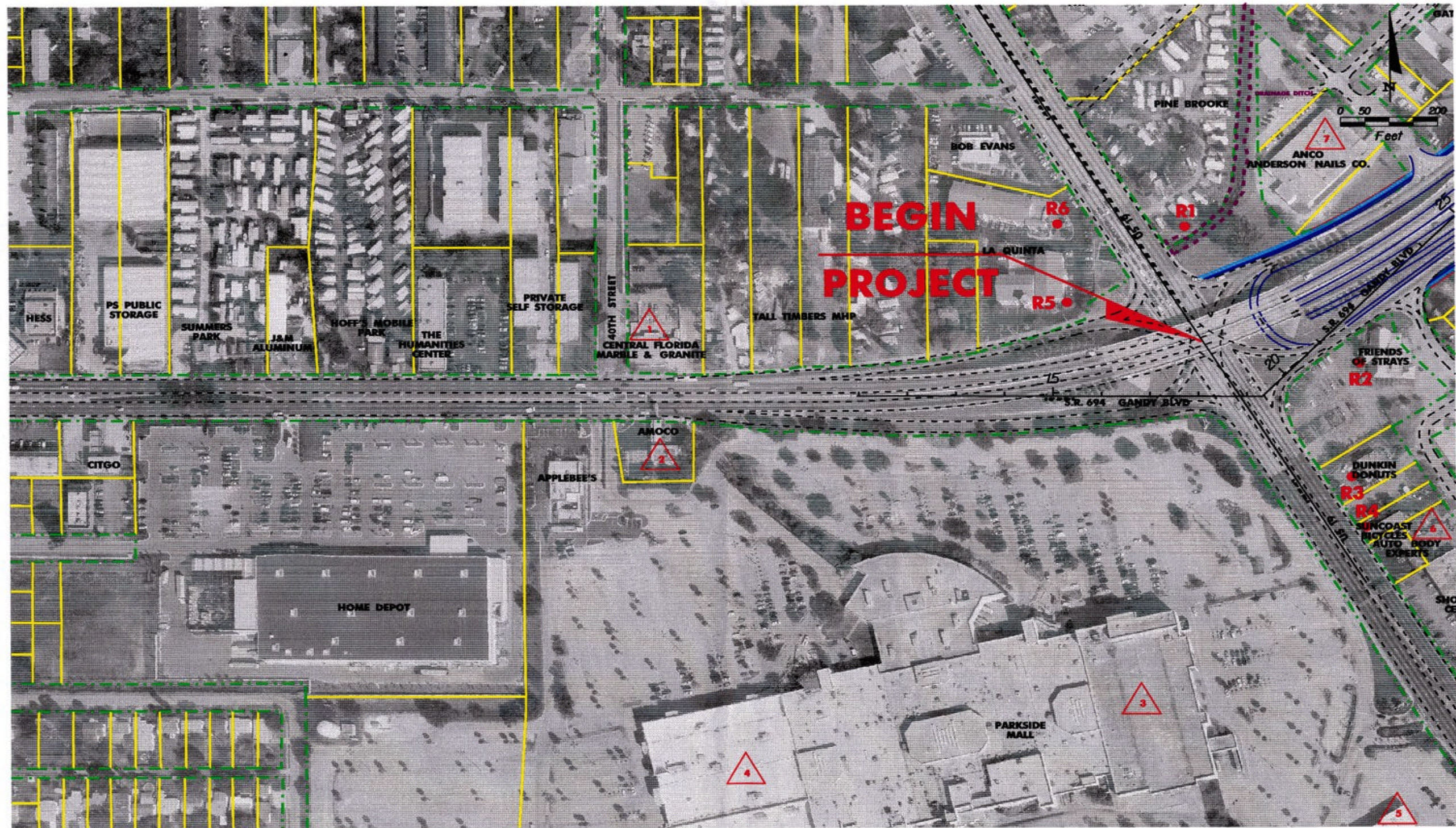
DESIGN YEAR: 2025

"Build"

Signalized Intersection:
Gandy Blvd at US 19
Design or Peak Hour Traffic
for most congested leg: 5219
Specify leg: WB PM
Approach Speed: 50

"No-Build"

Signalized Intersection:
Gandy Blvd at US 19
Design or Peak Hour Traffic
for most congested leg: 5219
Specify leg: WB PM
Approach Speed: 50



FLIGHT DATE : FEBRUARY 10, 2000

EXISTING RIGHT OF WAY	PROPERTY LINES	WETLAND BOUNDARY	POND SITE	AIR QUALITY RECEPTOR SITES
PROPOSED RIGHT OF WAY	CENTERLINE OF CONSTRUCTION	BRIDGE STRUCTURE OR RETAINING WALL	RESIDENTIAL RELOCATION	
EDGE OF PAVEMENT	SIDEWALK	EXISTING PAVEMENT	POTENTIAL CONTAMINATION SITE	

PBSI ENGINEERING PLANNING

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 694	PINELLAS	256931-1

**SR. 694 (GANDY BLVD) PDE STUDY
FROM U.S. 19 TO EAST OF 4TH STREET
PINELLAS COUNTY, FLORIDA
AIR QUALITY RECEPTOR SITES**

SHEET NO.
1

12-19-2001

COSCREEN98

(revised August 2000 to remove I/M options)

Gandy Boulevard from US 19 to East of 4th Street
 Gandy Boulevard Ramps/US 19 Intersection 2005 No Build Condition
 Analyst: PBS&J/ Daniel Doeblér

MOBILE5 Emission Factors Based On:

User-supplied Data:
 Region: 4: Hillsborough / Pinellas
 Year: 2005
 Speed: 50
 Default Data:
 Ambient Temperature: 60
 Maximum Temperature: 70
 Minimum Temperature: 50

Facility Data:

Max Approach Traffic Volume: 4154 veh/hour
 Environment: Urban
 Background Concentration: 1-hr = 5.0 ppm
 8-hr = 3.0 ppm

Receptor Data:

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Pine Brooke Home	60	140	6
Friends of Strays	210	65	6
Dunkin Donuts	70	250	6
Suncoast Bicycles	20	350	6
La Quinta Building 1	140	65	6
La Quinta Building 2	70	230	6

All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Pine Brooke Home	10.7	6.4
Friends of Strays	10.4	6.2
Dunkin Donuts	10.2	6.1
Suncoast Bicycles	10.2	7.3
La Quinta Building 1	11.0	6.6
La Quinta Building 2	10.2	6.1

Maximum concentrations include background CO

12-19-2001

COSCREEN98
(revised August 2000 to remove I/M options)

Sandy Boulevard from US 19 to East of 4th Street
Sandy Boulevard Ramps/US 19 Intersection 2025 No Build Condition
Analyst: PBS&J/ Daniel Doebler

MOBILE5 Emission Factors Based On:

User-supplied Data:
Region: 4: Hillsborough / Pinellas
Year: 2021
Speed: 50
Default Data:
Ambient Temperature: 60
Maximum Temperature: 70
Minimum Temperature: 50

Facility Data:

Max Approach Traffic Volume: 5219 veh/hour
Environment: Urban
Background Concentration: 1-hr = 5.0 ppm
8-hr = 3.0 ppm

Receptor Data:

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Pine Brooke Home	60	140	6
Friends of Strays	210	65	6
Dunkin Donuts	70	250	5
Suncoast Bicycles	20	350	5
La Quinta Building 1	140	65	5
La Quinta Building 2	70	230	5

All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Pine Brooke Home	10.8	6.5
Friends of Strays	10.7	6.4
Dunkin Donuts	10.2	6.1
Suncoast Bicycles	12.4	7.4
La Quinta Building 1	10.8	6.5
La Quinta Building 2	10.1	6.1

Maximum concentrations include background CO

2005B.out

12-19-2001

COSCREEN98

(revised August 2000 to remove I/M options)

Gandy Boulevard from US 19 to East of 4th Street
Gandy Boulevard Ramps/US 19 Intersection 2005 Build Condition
Analyst: PBS&J/ Daniel Doeblen

MOBILE5 Emission Factors Based On:

User-supplied Data:
Region: 4: Hillsborough / Pinellas
Year: 2005
Speed: 50
Default Data:
Ambient Temperature: 50
Maximum Temperature: 70
Minimum Temperature: 50

Facility Data:

Max Approach Traffic Volume: 4154 veh/hour
Environment: Urban
Background Concentration: 1-hr = 5.0 ppm
8-hr = 3.0 ppm

Receptor Data:

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Pine Brooke Home	60	140	6
Friends of Strays	210	65	6
Dunkin Donuts	70	250	6
Suncoast Bicycles	20	350	6
La Quinta Building 1	140	65	6
La Quinta Building 2	70	230	6

All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Pine Brooke Home	10.7	6.4
Friends of Strays	10.4	6.2
Dunkin Donuts	10.2	6.1
Suncoast Bicycles	12.2	7.3
La Quinta Building 1	11.0	6.6
La Quinta Building 2	10.2	6.1

Maximum concentrations include background CO

12-15-2001

COSCREEN98
(revised August 2000 to remove I/M options)

Gandy Boulevard from US 19 to East of 4th Street
Gandy Boulevard Ramps/US 19 Intersection 2025 Build Condition
Analyst: FBS&J/ Daniel Doebler

MOBILE5 Emission Factors Based On:

User-supplied Data:
Region: 4: Hillsborough / Pinellas
Year: 2020
Speed: 50
Default Data:
Ambient Temperature: 60
Maximum Temperature: 70
Minimum Temperature: 50

Facility Data:

Max Approach Traffic Volume: 5319 veh/hour
Environment: Urban
Background Concentration: 1-hr = 5.0 ppm
8-hr = 3.0 ppm

Receptor Data:

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Pine Brooke Home	60	140	6
Friends of Strays	210	65	6
Dunkin Donuts	70	250	6
Suncoast Bicycles	70	350	6
La Quinta Building 1	140	65	6
La Quinta Building 2	70	230	6

All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Pine Brooke Home	10.8	6.5
Friends of Strays	10.7	6.4
Dunkin Donuts	10.2	6.1
Suncoast Bicycles	12.4	7.4
La Quinta Building 1	10.8	6.5
La Quinta Building 2	10.1	6.1

Maximum concentrations include background CO

MEMORANDUM

Department of Transportation
District Seven Planning MS 7-340

DATE: December 21, 2001

TO: Robin Rhinesmith, EMO Department

FROM: Hawzi Bitar, Systems Planning Coordinator *FB*

COPIES: File

SUBJECT: F. P. N. #: 256931
State Road: SR 694/Gandy Blvd. (W. of US 19 to E. of 4th St)
County: Pinellas

Per your E-Mail dated December 20, 2001, this is to certify that the above referenced project is in conformance with the State Implementation Plan (SIP) and is in the current Federal Highway Administration (FHWA) approved Pinellas County MPO's Transportation Improvement Plan (TIP) Fiscal Year 2001/02 thru 2005/06.

/FKB